

the bond pad. The configuration recited in claim 16 is the same configuration recited in claim 10. Thus, it is clear that the claimed configuration of the trace gives rise to the attractive force on the solder.

Additionally, because the element in claim 16 emulates the trace, it is clear that the function of the element also follows from its structure. In other words, an attractive force is applied to the solder due to the element being coupled to and extending away from the bond pad. As such, claim 16 is not indefinite and is in condition for allowance.

Section 102 Rejections

All of the claims were rejected under § 102(b) and (e) as being anticipated by Healy et al. (hereinafter "Healy"). Specifically, the Examiner cites Figure 1 as anticipating claims 1-4, 9-12 and 19, Figure 2 as anticipating claims 5-6 and 14 and that the function of claim 16 is inherent in Healy because he discloses the identical structure.

Amended independent claim 1 calls for a trace that applies an attractive force to solder placed on a bond pad and a trace stub that counteracts the attractive force applied by the trace. Additionally, amended independent claim 10 calls for an element adapted to counteract an attractive force applied by a trace to solder placed on a bond pad. In contrast, Healy does not teach a trace that applies an attractive force to solder placed on a bond pad or a trace stub or element to counteract that force.

A trace that is exposed within a solder deposition region applies an attractive force to solder placed within that region. Healy does not have a trace exposed within a solder deposition region; thus no force can be applied by his trace. For example, in his process for assembling electrical conductors, Healy removes a portion of supportive insulating material that surrounds a printed circuit trace to expose an interconnect pad. See column 2, lines 18-22. A solder bead is then formed on the interconnect pad. See column 2, lines 25-30. Thus, Healy is only exposing the interconnect pad for solder deposition.

This conclusion is supported by examining Figures 1 and 2 of Healy. Figure 1 is a fragmentary view of an insulated printed circuit trace with a solder ball deposited therein. In the fragmented view almost all of the insulating material has been stripped away to show the circuit trace and interconnect pad. Figure 2 is a cross section of the printed circuit trace of Figure 1. In the cross sectional view, the solder deposition area surrounding the solder bead is well defined.

If the solder deposition area as defined in Figure 2 is imposed on the solder deposition area in Figure 1 (taking into consideration the change in perspective) it is then evident that Healy's solder deposition area is only as great as the interconnect pad. Consequently, neither the trace nor the trace stub is exposed in Healy's solder deposition region.

In other words, after removing the insulating material to create an area for solder deposition, Healy's circuit trace and trace stub remain covered by the insulation. Because the trace and trace stub are covered and not exposed, the trace does not exert an attractive force on the deposited solder and the stub does not counteract that force. As such, Healy does not teach an attractive force applied by a trace to solder placed on the bond pad and he does not teach a stub or element to counteract that force. Thus, amended claims 1 and 10 and the claims depending therefrom are in condition for allowance.

Likewise, Healy's structure does not have an inherent function that is the same as the function recited in claim 16. In order to be inherent, the "missing descriptive matter [must be] necessarily present in the thing described in the reference...". *Continental Can Co. USA v. Monsanto Co.*, 948 F.2d 1264, 1268, 20 U.S.P.Q.2d 1746, 1749 (Fed. Cir. 1991). Amended claim 16 calls for an attractive force being applied by the trace to the solder. The force arises from the trace being coupled to and extending away from the bond pad. The trace stub emulates the trace; thus the stub applies an attractive force to the solder in the same way as the trace.

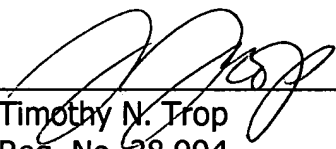
As previously explained, Healy does not teach an attractive force applied by a trace to solder deposited on a bond pad. For the same reasons, Healy does not teach an attractive force applied by a trace stub to solder deposited on a bond pad. Specifically, Healy's solder deposition area is only as large as the interconnect pad. Thus, Healy's solder deposition area does not include an exposed portion of a trace or a trace stub. If the trace and trace stub are not exposed within the solder deposition area then they do not exert an attractive force on the solder. Thus, the missing descriptive matter of attractive forces being applied by the trace and the stub is not necessarily present in Healy's structure. As such, amended claim 16 is in condition for allowance.

In accordance with the above remarks, the application is in condition for allowance and the Examiner's prompt action is respectfully requested.

No additional fees are believed to be required due to this response. The Commissioner is authorized to charge any additional fees or credit any overpayment to Deposit Account No. 20-1504 (MICT-0050-US).

Respectfully submitted,

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Timothy N. Trop
Reg. No. 28,994
TROP, PRUNER & HU, P.C.
8554 Katy Freeway, Ste. 100
Houston, TX 77024
713/468-8880 [Phone]
713/468-8883 [Fax]